

Smokeless Tobacco: Profiling Sachets and Pattern of Use among Low Socioeconomic Population of Puducherry

Abstract

Background: Tobacco consumption is highest among labor classes and low socioeconomic status (SES), with inclination toward smokeless tobacco (SLT). **Aim:** The aim of the study was to determine the prevalence and pattern of SLT consumption with secondary objective to profile various sachets of SLT most commonly sold in the study setting. **Setting and Design:** A cross-sectional questionnaire study conducted in rural Puducherry. **Materials and Methods:** A self-interviewed structured questionnaire was administered to 150 participants from two villages. Data on education, occupation, and income were collected with details in the form of tobacco consumed, duration of habit, daily consumption, and brand of SLT among other things. Profiling of sachets was done with manufacturing date, date of expiry, presence and absence of warning signs, and name of the manufacturer as parameter. **Statistical Analysis:** Descriptive analysis was done for frequency distribution and Chi-square test for proportions. **Results:** The overall prevalence of SLT was 44% with women consuming more than males. 41–50-year-old were highest users of SLT. More than 50% of the participants were unaware of the “pictorial warnings” and 65% did not know about the presence of “contents” on sachets. Pan masala with tobacco was the most preferred form. Only 5 of the 23 commercial brands of sachets had both “pictorial and readable warnings” printed. **Conclusion:** The prevalence of STC was high when compared to the general population. Steps need to be taken to address the adverse effects printed on sachets for low SES populations. The printed warnings need to be inspected regularly. Dual tobacco use is a new addition to the existing list of challenges.

Keywords: Pictorial warning, prevalence, questionnaire study, readable warning, smokeless tobacco

Introduction

Tobacco use is of growing public health concern in India. Recent survey data indicate that the country has some 275 million tobacco users,^[1] with a higher number of smokeless tobacco (SLT) users than smokers (cigarettes and bidis combined). There is considerable heterogeneity in the prevalence, type, and volume of tobacco use between states in India. The prevalence of tobacco use ranged from 9% in Goa to 67% in Mizoram in 2009–2010. This likely reflects different historical and cultural factors that have encouraged or discouraged tobacco consumption in different parts of the country.^[1] Previous studies have identified marked variations in tobacco use between socioeconomic groups in India.^[2,3]

The term SLT refers to more than thirty different products, broadly categorized as “spit tobacco” or “chewing tobacco.”^[4-7] Tobacco is being chewed in multiple forms in

South Asia: betel quid, leaf alone, leaf with lime, tobacco with areca nut preparation, and tobacco water is a special form of tobacco used in states of Mizoram and Manipur. SLT consumption (STC) causes oral, head, and neck cancer, diabetes, hypercholesterolemia, myocardial infarction, and adverse effects on pregnancy.^[4] Lower socioeconomic status (SES) has consistently been associated with higher smoking prevalence in industrialized country settings. There are limited data on the relationship between SES and the volume of tobacco consumed in developing countries.^[8] The present study was conducted (a) to determine the prevalence of STC among low SES population and (b) profiling of commercially available SLT according to printed material on sachets.

Materials and Methods

Study design, setting, and participants

This cross-sectional study was conducted to determine the usage of commercially available SLT targeting individuals

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belonging to low socioeconomic status. The study was conducted in the month of July 2015. Permission to conduct the study was obtained from the concerned authorities of Indira Gandhi Institute of Dental Sciences (IGIDS), Puducherry. Informed consent was obtained from all the participants. Puducherry is a union territory consisting of five different zones. The present study was conducted in two conveniently selected villages of one randomly selected zone having easy accessibility to IGIDS which is situated in a rural backdrop of Puducherry.

This survey has two parts:

Prevalence and patterns of smokeless forms of tobacco

For the present study, we conveniently chose 150 participants who were found standing in the close vicinity of petty shops selling tobacco (both smoking and smokeless form, among other things) near market and bus stop.

The participants were approached, and the nature of the study explained to them. Anonymity and confidentiality were assured to all study participants. No incentives were provided for participants to be a part of the study. The medium of communication was in local language (Tamil). Only those providing informed consent were included in the study. The data were collected with the help of a self-interviewed structured questionnaire pretested on a group of individuals who were not a part of the study. The questionnaire was used to elicit information on the type of tobacco consumed and the duration and frequency of habit. Current tobacco users were those who consumed tobacco at least once a day. Their awareness regarding the contents, pictorial warnings, and their attempt to quit the same was also recorded. Information on different types and/or brands of nonsmoking tobacco was also obtained. Kuppuswamy's SES scale was used to stratify the participants into different SES status.^[9]

Details on quid sachets

The questionnaire also elicited different brands of commercially available SLT. All the commercially available brands (sachets) consumed by the participants (and otherwise also) were brought from standard petty shops selling tobacco (which represents millions of other petty shops across the country) their content emptied/discarded and then assessed the presence and/or absence of "warnings" provided on the sachets (both readable and pictorial, which is mandated by the government of India), name of the manufacturer, date of manufacture, expiry date, price of the sachet, and presence or absence of contents printed on sachets. The proportion of area covered by "warnings" was not assessed in the present study. The empty sachets were also described and classified based on the form of tobacco in SLT. Incomplete questionnaires with response missing for any item were not included in the present study. The data obtained was entered into Microsoft Excel sheet (Windows

8.1, Microsoft Corporation) and analyzed using SPSS version 16.0 (SPSS Inc., Chicago, IL, USA) mainly for frequency distribution. Cross tabulation between frequency and duration of SLT was tested using Chi-square test.

Results

All the participants gave their consent and were included in the present study. The response rate was 100%, with a mean age of 44 years. The proportion of SLT consumers, the marital status, and SES are presented in Table 1. An increase in the consumption of SLT was from 31–40 years with highest consumption observed among participants of 41 - 50 years [Figure 1]. Females were found to be more in number than males in the smokeless category [Figure 2]. Significant differences were observed between the frequency of habit per day and years since started using SLT [Table 2]. Awareness regarding the content of sachets and presence of pictorial warning was found to be low with

Table 1: Sociodemographic variables of the study participants

Variables	Mean Age, SD %, (N)
Age (years)	
Mean age	44.3±13.7
Min age	14
Max age	75
Gender	
Male	59.3 (89)
Female	40.7 (61)
Marital status	
Married	86 (129)
Unmarried	10 (15)
Widow (er)	4 (6)
Socioeconomic status	
IV	86.7 (130)
V	13.3 (20)
Tobacco	
Smokeless	44 (66)
Smoking	26.7 (40)
Both	29.3 (44)

% - Percentage, N - Number

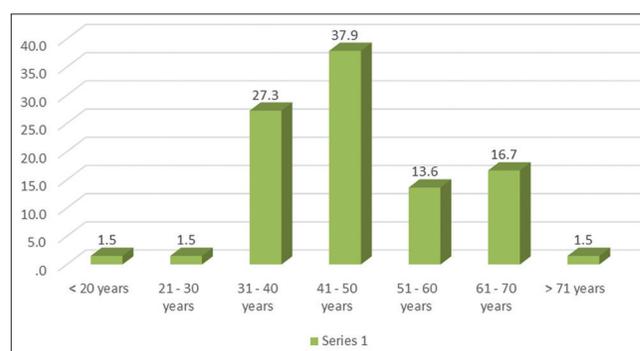


Figure 1: Distribution of participants consuming smokeless tobacco according to age (percentage)

Table 2: Distribution of participants according to the frequency of usage per day and years of consumption

Duration	<5 times/day	6-10 times/day	>11 times/day	Total	χ^2	P
<1 year	4.5 (3)	0	0	4.5 (3)	61.56	<0.001
1-5 years	3 (2)	7.6 (5)	0	10.6 (7)		
6-10 years	0	34.9 (23)	4.5 (3)	39.4 (26)		
>11 years	3 (2)	9.1 (6)	33.3 (22)	45.4 (30)		
Total	10.5 (7)	51.6 (34)	37.8 (25)	100 (66)		

Level of significance at <0.001, percentage (n)

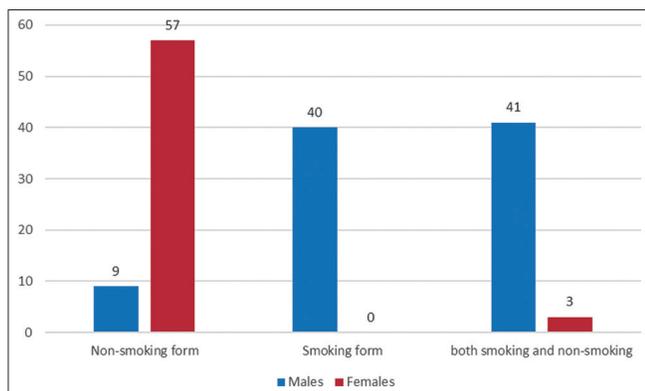


Figure 2: Gender-wise frequency distribution of participants based on forms of tobacco consumed (frequency)

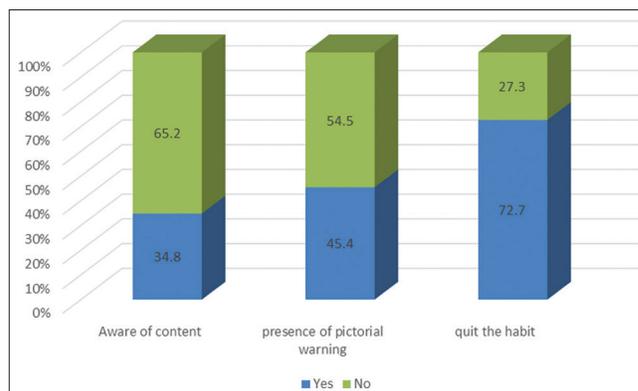


Figure 3: Response by the participants for various items of a questionnaire (percentage)

34.8% and 45.5%, respectively. Among those who knew the presence of pictorial warning, only 33% (10) knew the reason for displaying pictorial warnings. However, on a positive note, about 72% of the users wanted to quit this habit [Figure 3]. The study also obtained additional data and found that 29.3 % (44) of the participants used both smoking and smokeless forms of tobacco (dual users). Dual consumption was found to be higher among males and married participants with majority belonging to class IV SES.

Prevalence of specific smokeless tobacco products

In the present research work, pan masala with tobacco was the most common SLT (38%) followed by betel quid with tobacco, lime, and areca nut (33%) [Figure 4].

Age and consumption of forms of tobacco

There was a steep rise in the consumption of smoking forms by third decade to fifth decade followed by a sudden drop in the sixth decade. However, smokeless and dual forms of tobacco follow a gradual increase in early ages and similar decrease during later years of life [Figure 5].

Profiling of smokeless tobacco sachets

A total of 23 different brands of SLT were reportedly consumed by the study participants. The different forms of tobacco as printed on the sachets were crushed tobacco, tobacco flakes, and tobacco with mouth freshener. Only five sachets had both readable and pictorial warning printed on the cover. The price ranged from 50 to 40 ₹ (Indian national rupee) depending on whether the sachets

were small or available in a large pack. The proportion of sachets covered by “warnings” was not assessed [Table 3].

Discussion

The present research work was directed toward lower SES groups. As evident from the literature, these groups are more susceptible to consuming SLT.^[2] The overall prevalence was found to be 44% at the time of the study, which is more than the national prevalence (20.3%), the findings of Joshi et al but lower than the findings of Ansari et al.^[10-12] The age group consuming SLT was found to be highest among the middle-aged participants with similar findings reported in literature.^[11-14]

In contrast to Global Adult Tobacco Survey of 2009-10, we found majority of female participants consuming SLT than male participants.^[10] In general, South Asian traditional values and social norms do not favor smoking by women or the young, but surprisingly Gupta and Ray in 2003 pointed out that there is no such taboo against SLT, which may encourage women to consume SLT.^[4] Majority of the participants reported that they were in the habit of using SLT for the past 6–10 years, and an equal proportion consuming more than ten times a day. Easy accessibility and affordability, along with misunderstandings concerning its useful health effects are main contributing elements for augmented STC. While many people are aware that consumption of tobacco is hazardous, yet majority of users are not aware of the lethal association between SLT and fatal diseases.^[15]

More than 65% of the participants had no clue that every sachet has something printed called “contents.” However,

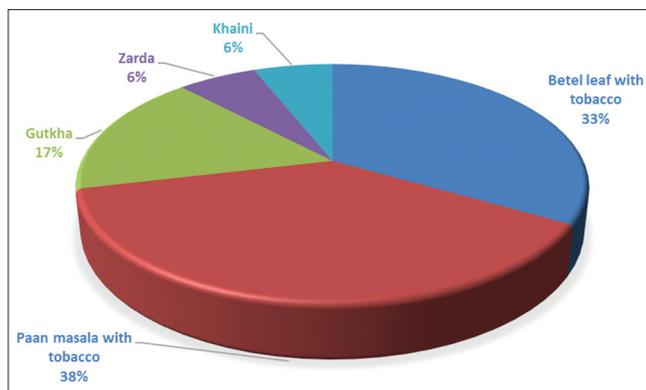


Figure 4: Distribution of participants according to usage of forms of smokeless tobacco

Table 3: Profiling of smokeless tobacco according to the following parameters

	Present	Absent
Pictorial warning	21.7 (5)	78.3 (18)
Readable warning	47.8 (11)	52.1 (12)
Contents of sachets	95.6 (22)	(1)
Per unit price (mean)	0.50 INR	40 INR
Both readable and pictorial warnings	21.7 (5)	78.3 (18)
Manufacture date	65.2 (15)	34.8 (8)
Expiry date	65.2 (15)	34.8 (8)
Name of manufacturer	100 (23)	0

Total=23 different brands of sachets. Percentage (n). INR: Indian national rupee

given their low socioeconomic status, it is quite possible that study participants may not be able to read what is printed on sachets and for what reason. It can be attributed to low education which is interestingly also a stronger predictor of SLT than household wealth for both men and women.^[16] Similarly, about 54% were unaware that there exists a “pictorial warning” printed on the sachets. Mutti *et al.* in 2015 found out that pictorial warnings are more effective than “text only” warnings.^[17] Probably, for this reason, it has been made mandatory by the government of India to increase the size of pictorial warning to 40% and overall warning to cover 85% of front and back surfaces.

In spite of the participants’ low SES, a good 72% of the participants wanted to quit the habit. This is rather an encouraging component of the research since tobacco users are at a much higher risk of falling ill and dying prematurely of cancers, heart attacks, respiratory diseases, or other such tobacco-related diseases, imposing additional costs for health care and depriving families of much-needed income.^[18] Since literature has pointed out that lower SES sections of society are most vulnerable and given the large proportion of participants in this study who are willing to quit the habit, tobacco control programs in the simplest of ways is the appropriate option which can be used. Education is an important factor to be considered for any tobacco control program, and participants in the

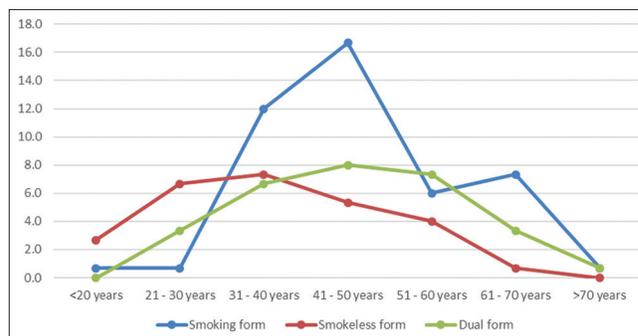


Figure 5: Relation between age intervals and forms of tobacco consumed (percentages)

present study belonged to low SES; it is wiser to customize existing tobacco control program in the form of dramas, plays, and skits for the community in the local language respecting their culture.

The minimum age of the study participants consuming SLT was found to be 17 years, similar trend was reported by Sinha *et al.* in 2012 who reported that 26% of Indian population aged 15 and above used SLT.^[14] Chadda and Sengupta in 2002 reported that a number of factors influence the use of tobacco by children and teenagers. These include family history of tobacco use by elders, peer influence, experimentation, easy access to such products, and more importantly aggressive marketing campaign by tobacco industry.^[19] The usage of SLT in India is more observed in males than females; however, our results were contrasting with more females using SLT than males. Among the South East Asian countries, Bangladesh, Thailand, and Indonesia are the countries where females are ahead of males in using SLT.^[12] Importance should be given to schools to target students who might fall prey to any form of tobacco.

In the present study setting, pan masala with tobacco was the preferred form of SLT, followed by betel leaf with tobacco. Ansari *et al.* in 2010 reported gutkha followed by pan with tobacco as the most common forms,^[12] whereas in the Indian subcontinent, khaini followed by gutkha were the most commonly preferred form SLT.^[14,20] The tobacco situation in India is unique because a wide variety of tobacco products are available for smoking and smokeless use.

India is a signatory to the Framework Convention on Tobacco Control since September 2003. The Indian parliament has passed “The Cigarettes and Other Tobacco Products Act” and enforced it from May 1, 2004.^[21] Even though the Act is an important landmark, there are still a few pressing issues which need to be addressed. Sushma and Sharang in 2005 pointed that the use of pan masala advertisements is surrogates for SLT products.^[22] Interestingly, pan masala with tobacco is the most common SLT consumed by the participants in our study suggesting a likely association. Further studies with significant results are required to prove and/or refute such hypothesis.

It is mandatory according to the Indian Laws that warning signs are printed on sachets containing SLT. However, we found that out of 23 sachets, 18 did not have any pictorial warning, 12 sachets did not have readable warnings, and only 5 had both pictorial and readable warnings. This surprisingly is not at par with the mandated laws framed by the authorities. As already mentioned, given the low SES, it is quite possible that participants might not be able to understand and/or read the printed warnings, and for precisely that reason pictorial warnings play an important component in informing the consumer about harmful effects of SLT. Furthermore, pictorial warnings are perceived to have greater efficacy than text-only warnings.^[22] Another important factor is the affordability. It was found that some of these SLT sachets were sold at price as low as 1 inr (0.015 USD) ₹ (0.01 USD), which is very much affordable. The present study was conducted in rural backdrop of Puducherry and Gupta *et al.* in 2010 found that rural and urban slum respondents show a higher prevalence of consuming SLT. Such respondents are generally poorly educated and employed or engaged in lower paying jobs. A very likely reason for the mentioned cause could be the pricing strategy by the tobacco industry,^[20] which ensures the availability of SLT for all strata of society.

Another potentially dangerous but hidden aspect of tobacco usage is the pattern of “dual tobacco use.” Dual users may have a harder time quitting tobacco than people who only smoke or only chew. Not much will be discussed about dual tobacco usage since this was not the objective of the study. Nevertheless, in our study, about 29% (44) of the participants were into dual tobacco use. Males were more into dual tobacco use when compared to females, their prevalence higher than the country prevalence of 19.4% and 5.3% for males and females, respectively.

Conclusion

It can be concluded that SLT was the most common form of tobacco used among the lower SES groups (IV and V) with women leading the race. The participants in the fifth decade were the highest consumer of SLT. More than 50% of the participants were unaware of the presence of “pictorial warnings” on SLT sachets. About 65% of the participants were clueless about “contents” printed on the sachets. Pan masala with tobacco followed by betel leaf with tobacco was the most common form of SLT used. A new challenge, “dual tobacco use” seems to be emerging from the existing pool of tobacco consumption. The SES status of the population needs to be given importance when Tobacco Control Programs are initiated and/or implemented. Only 21.7 (5) of the commercially available sachets had both “pictorial and readable warnings.”

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Conflicts of interest

There are no conflicts of interest.

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